

## 04/14/14    Agenda

- Warm up Problem
- Review Homework
  - Worksheet 9 - Factoring ( $a > 1$ )
- Polynomials - day 16 - Factoring
  - Special Cases
    - Difference of Two Squares
    - Factor by Grouping

## Homework

- Worksheet 10

## Warm Up



Put your name on a slip of paper.

Factor:

$$3x^2 + x - 2 \quad (3x-2)(x+1)$$

$$\begin{array}{r} ac = 3 \cdot -2 \\ = -6 \end{array} \quad \begin{array}{r} +1 \\ +3, -2 \end{array}$$

$$3x^2 + 3x - 2x - 2$$

	$x+1$
$3x$	$3x^2 + 3x$
$-2$	$-2x - 2$

$$(x+1)(3x-2)$$

Multiply:

$$(x+5)(x-5)$$

$$x^2 - 5x + 5x - 25$$

$$x^2 - 25$$

⇒

What is "Difference of Two Squares?"

$$(\underline{x} + \underline{5})(\underline{x} - \underline{5}) = \underline{x^2} - \underline{25}$$

$$\begin{array}{r} ac \quad 1 \cdot -25 \\ \underline{-25} \quad 0 \\ -5, +5 \end{array}$$

So....

$$(\underline{a^2} - \underline{b^2}) = (a + b)(a - b)$$

$$\underline{x^2} - \underline{64} = (x + 8)(x - 8)$$

$$\sqrt{x^2} = x$$

$$\sqrt{64} = 8$$

$$4x^2 - 36 = (2x + 6)(2x - 6)$$

$$\sqrt{4x^2} = 2x$$

$$\sqrt{36} = 6$$

Got it???

$$(a^2 - b^2) = (a + b)(a - b)$$

You Try....

$$x^2 - 49 = (x + 7)(x - 7)$$

$$\sqrt{x^2} = x$$

$$\sqrt{49} = 7$$

$$16x^2 - 81 = (4x + 9)(4x - 9)$$

$$\sqrt{16x^2} = 4x$$

$$\sqrt{81} = 9$$

$$x^2 \oplus 16$$

PRIME



You Try....

$$6x^3 + 3x^2 - 10x - 5$$

$$\underline{10x^2} - \underline{14xy} - \underline{15x} + \underline{21y}$$

$$(10x^2 - 15x) - (14xy + 21y)$$

$$5x(2x-3) - 7y(2x-3)$$

$$(5x-7y)(2x-3)$$

### Steps to Factoring Completely:

- 1.) Factor out the *Greatest Common Factor (GCF)*.
- 2.) If the polynomial has 2 or 3 terms, look for a difference of two squares, or a pair of binomial factors
- 3.) If the polynomial has 4 or more terms, group terms and factor to find common binomial factors.
- 4.) As a final check, make sure there are no common factors other than 1.